



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/706,239	11/12/2003	Dennis R. Christensen	CEDC 1002	6388
321	7590	12/13/2005	EXAMINER	
SENNIGER POWERS ONE METROPOLITAN SQUARE 16TH FLOOR ST LOUIS, MO 63102			MOORE, KARLA A	
			ART UNIT	PAPER NUMBER
			1763	

DATE MAILED: 12/13/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/706,239

Applicant(s)

CHRISTENSEN, DENNIS R.

Examiner

Karla Moore

Art Unit

1763

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 April 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) 18-22 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-17, 23-27, 29 and 30 is/are rejected.
- 7) ☒ Claim(s) 28 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>0204,0405</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
 - I. Claims 1-17 and 23-30, drawn to a vapor deposition apparatus, classified in class 118, subclass 719.
 - II. Claims 18-22, drawn to a process for coating an item in a cleanroom, classified in class 427, subclass 248.1.

The inventions are distinct, each from the other because of the following reasons:

2. Inventions II and I are related as process and apparatus for its practice. The inventions are distinct if it can be shown that either: (1) the process as claimed can be practiced by another materially different apparatus or by hand, or (2) the apparatus as claimed can be used to practice another and materially different process. (MPEP § 806.05(e)). In this case, the process as claimed can be practiced by another materially different apparatus, for example, one not comprising a separate vaporizer and pyrolysis furnace (claims 1 and 23) or not comprising a shroud (claim 23). Further, the apparatus as claimed (claim 10), can be used to practice another and materially different process, for example one not including the steps of loading solid coating material into the vapor deposition apparatus and operating said vapor deposition apparatus to heat said solid material to form a gaseous coating material to form a coating on the item.
3. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.
4. During a telephone conversation between Examiner Chen and Andrew Claerbout on September 7, 2005 a provisional election was made with traverse to prosecute the invention of claims Group I, claims 1-17, 23-30. Affirmation of this election must be made by applicant in replying to this Office action. Claims 17-22 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 10-14 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No.4,276,855 to Seddon.

7. Seddon discloses a deposition enclosure for use in a vapor deposition apparatus having a cleanroom side and a service side (column 2, rows 28-34), said deposition enclosure comprising: a structure defining a deposition chamber (Figures 1 and 2, 11) for receiving and item to be coated (Figure 2, 53); an inlet (47) for flow of coating material into the deposition chamber; an outlet (column 1, rows 60 and 62) for flow of coating material out of the deposition chamber; and at least two doors (21-23) attached to said structure to allow access to said deposition chamber, at least one of said doors (21 and 22) allowing access to the deposition chamber from the cleanroom side of the apparatus for placement of an item to be coated in the deposition chamber and for removal of a coated item from the deposition chamber.

8. With respect to claim 11, said at least two doors comprise an access door (21 and 22) and a service door (23), said access door configured to allow access to the deposition chamber from inside a cleanroom and said service door being configured to allow access to the deposition chamber from outside the cleanroom.

9. With respect to claim 12, a shroud (wall, 26) at least partially surrounds said access door to allow isolated access to the access door from inside the cleanroom.

10. With respect to claim 13, said service door is connected to said structure on the service side of the apparatus (see Figure 2).

Art Unit: 1763

11. With respect to claim 14, said access door is connected to said structure on the cleanroom side of the apparatus (see Figure 2).

Claim Rejections - 35 USC § 103

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

13. Claims 1-6, 23 and 29-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 4,276,855 to Seddon in view of U.S. Patent No. 5,534,068 to Beach et al.

14. Seddon discloses a deposition enclosure for use in a vapor deposition apparatus having a cleanroom side and a service side (column 2, rows 28-34) substantially as claimed, said deposition enclosure comprising: a structure defining a deposition chamber (Figures 1 and 2, 11) for receiving and item to be coated (Figure 2, 53); an inlet (47) for flow of coating material into the deposition chamber; an outlet (column 1, rows 60 and 62) for flow of coating material out of the deposition chamber; and at least two doors (21-23) attached to said structure to allow access to said deposition chamber, at least one of said doors (21 and 22) allowing access to the deposition chamber from the cleanroom side of the apparatus for placement of an item to be coated in the deposition chamber and for removal of a coated item from the deposition chamber.

15. However, while Seddon does teach that the apparatus can comprise various types of material sources (column 2, rows 62-65), Seddon fails to explicitly teach the apparatus further comprising a vaporizer for vaporizing solid coating material and a pyrolysis furnace for heating the vaporized coating material to form a pyrolyzed gaseous coating material.

16. Beach et al teach that parylene coatings are ideally suited for use as a conformal external coating in a variety of fields due to their ability to provide thin films and conform to substrates of varied shapes (column 2, rows 40-44). Beach et al. also teach parylene coating apparatus typically include both a

Art Unit: 1763

vaporizer and a pyrolysis furnace for supplying the processing material (column 2, row 64 through column 3, row 3). The vaporized coating material flows into the deposition enclosure via an inlet (30) and from the enclosure via an outlet (116).

17. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided a vaporizer and a pyrolysis furnace in Seddon in order to form thin film parylene coatings conformal to substrates of varied shapes as taught by Beach et al.

18. With respect to claim 2, Beach et al. further teach the use of a filter (24) connected to said outlet for receiving gaseous coating material discharged from the deposition chamber. As described above, Seddon teaches that in order to maintain a clean environment all structures except wafers to be loaded should be accessed via the service side (column 1, rows 25-28 and column 2, rows 28-34).

19. With respect to claims 3 and 23 Beach et al. disclose surrounding the deposition enclosure (and thus the access door) with a shroud for the purpose of isolating the deposition enclosure so that a purer, denser, more stable coating may be formed (column 12, rows 12-35).

20. With respect to claim 4, the shroud would necessarily be located in or adjacent an opening in the wall of the cleanroom in order to be in proximity to the deposition enclosure to serve its purpose.

21. With respect to claims 5 and 30, in Seddon, an access door (21 and 22) is configured to allow access to the deposition chamber from inside a cleanroom and said service door being configured to allow access to the deposition chamber from outside the cleanroom. A service door (23) is configured to allow access to the deposition chamber from outside of the cleanroom.

22. With respect to claim 6, said shroud comprises a platform for supporting said items outside of the deposition enclosure. In Seddon, removable racks placed in the deposition enclosure and therefore inside a shroud provided around the deposition enclosure. As they are removable they can also support items outside the deposition enclosure.

23. With respect to claim 29, the shroud of Beach et al. comprises a wall (29) having an opening for receiving the deposition enclosure.

Art Unit: 1763

24. Claims 7-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Seddon and Beach et al. as applied to claims 1-6 above, and further in view of U.S. Patent No. 6,086,952 to Lang et al.

25. Seddon and Beach et al. disclose the invention substantially as claimed and as described above.

26. However, Seddon and Beach et al. fail to teach two control stations, one accessible from inside the cleanroom and one accessible from outside the cleanroom. Nor do Seddon and Beach et al. disclose an indicator for displaying status of the apparatus, said indicator being visible from inside the cleanroom.

27. Lang et al. teach the use of two control stations (column 13, rows 38-67), one accessible from inside the cleanroom and one accessible from outside the cleanroom for the purpose of allowing both technicians and operators to have access to the system. Further, an indicator (display screen) for displaying status of the apparatus is also visible from inside the cleanroom. The controllers and indicator are provided for dictating and displaying processing parameters for a particular process.

28. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided two controllers and a display in Seddon and Beach et al. in order to dictate and display parameters of a particular process as taught by Lang et al.

29. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Seddon as applied to claims 10-14 above in view of U.S. Patent No. 5,855,726 to Soraoka et al.

30. Seddon discloses the invention substantially as claimed and as described above.

31. However, Seddon fails to teach said access door and service door are attached by hinges.

32. Soraoka et al teach the use of hinged doors for the purpose of providing access to processing equipment (column 14, rows 21-49).

33. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided hinged doors in Seddon in order to provide access to the processing equipment as taught by Soraoka. Examiner also notes that the courts have ruled that an express suggestion to substitute one equivalent component or process for another is not necessary to render such substitution obvious. In re Fout, 675 F.2d 297, 213 USPQ 532 (CCPA 1982).

Art Unit: 1763

34. Claims 16 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Seddon as applied to claims 10-14 above in view of U.S. Patent Publication No. 2002/0102400 A1 to Gorokhovsly et al.

35. Seddon discloses the invention substantially as claimed and as described above.

36. However, Seddon fails to teach either the access door or the service door comprises a window for viewing.

37. Gorokhovsly et al. teach the use of windows (viewing ports) provided in the door of a processing chamber for the purpose of diagnostic assessment and control of the process (paragraph 40).

38. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided windows in Seddon in order to diagnostically access and control the process as taught by Gorokhovsly et al.

39. Claims 24-25 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Seddon and Beach et al. as applied to claims 1-6, 23 and 29-30 above, and further in view of U.S. Patent Publication No. 2002/0102400 A1 to Gorokhovsly et al.

40. Seddon and Beach et al. disclose the invention substantially as claimed and as described above.

41. However, Seddon and Beach et al. fail to teach the shroud as at least partially transparent.

42. Gorokhovsly et al. teach the use of transparent structures surrounding a deposition chamber for the purpose of allowing diagnostic assessment and control of the process (paragraph 40).

43. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided the shroud as a transparent structure in Seddon and Beach et al. in order to allow for diagnostic access and control of the process as taught by Gorokhovsly et al.

44. With respect to claim 25, which merely claims that the upper part is comprised of two parts, the courts have ruled that an express suggestion to substitute one equivalent component or process for another is not necessary to render such substitution obvious. In re Fout, 675 F.2d 297, 213 USPQ 532 (CCPA 1982). In the instance, case a two-part shroud would provide the same isolation and would thus be equivalent.

Art Unit: 1763

45. With respect to claim 27, said shroud comprises a platform/lower part for supporting said items outside of the deposition enclosure. In Seddon, removable racks placed in the deposition enclosure and therefore inside a shroud provided around the deposition enclosure. As they are removable they can also support items outside the deposition enclosure.

46. With respect to claim

47. Claims 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over Seddon and Beach et al. as applied to claims 24-25 and 27 above, and further in view of 5,364,225 to Hecht et al.

48. Seddon, Beach et al. and Gorokhovsly et al. disclose the invention substantially as claimed and as described above.

49. However, Seddon, Beach et al. and Gorokhovsly et al. fail to teach the transparent material as polycarbonate.

50. Hecht et al. teach the use of polycarbonate as a transparent construction material for processing apparatus due to its clean room capability (column 12, rows 22-35).

51. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided polycarbonate as the transparent material in Seddon, Beach et al. and Gorokhovsly et al. fail due to its cleanroom capability as taught by Hecht et al.

Allowable Subject Matter

52. Claim 28 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

53. The following is a statement of reasons for the indication of allowable subject matter: The prior art of record fail to teach or fairly suggest a vapor deposition apparatus as recited in the previous claims also comprising a shroud with first and second upper parts and a lower part having a platform for supporting said items outside the deposition enclosure and the lower part comprising a fastening flange adapted for connection to said first and second upper parts.

Art Unit: 1763

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Karla Moore whose telephone number is 571.272.1440. The examiner can normally be reached on Monday-Friday, 9:00 am-6:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Parviz Hassanzadeh can be reached on 571.272.1435. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Karla Moore
Patent Examiner
Art Unit 1763
9 December 2005